S. HRG. 100-244, PT. 1

NATIONAL INFRASTRUCTURE ISSUES

HEARING

BEFORE THE

SUBCOMMITTEE ON
WATER RESOURCES, TRANSPORTATION, AND
INFRASTRUCTURE

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

JULY 22, 1987

PART 1

Printed for the use of the Committee on Environment and Public Works

U.S. GOVERNMENT PRINTING OFFICE

77-481 WASHINGTON : 1987

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

S321-9

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NATIONAL INFRASTRUCTURE ISSUES

WEDNESDAY, JULY 22, 1987

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON WATER RESOURCES, TRANSPORTATION,
AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met at 9:32 a.m. in room SD–406, Dirksen Senate Office Building, Hon. Daniel Patrick Moynihan (chairman of the Subcommittee) presiding.

Present: Senators Moynihan, Burdick, Reid, Graham, Stafford, Chafee, Symms, and Pressler.

OPENING STATEMENT OF HON. DANIEL PATRICK MOYNIHAN, U.S. SENATOR FROM THE STATE OF NEW YORK

Senator MOYNIHAN. I wish a very pleasant good morning to our guests. I will open this first hearing on Infrastructure held by the new Subcommittee on Transportation, Water Resources, and Infrastructure which was established at the outset of the 100th Congress. The Congress this year enacted two major pieces of legislation, the Clean Water Act and the Surface Transportation Act, both of which bring to a close major public works projects. The Interstate Highway Program, the largest public works project in history, and the Clean Water program, without putting in question the future of public works activities of our government and bringing in to highlight the need, not so much to construct, as to maintain and extend the existing system of public works.

We have an extraordinary honor this morning. The Senate is honored by one of the rare historic appearances of a Speaker of the House of Representatives before one of its committees. That he should choose this committee rather than some more exotic enterprise such as the Committee on Foreign Relations, speaks to his concern of the subject and is an event in history of this committee. It is a committee about 160 years old and the 200th anniversary of the Constitution which is an occasion on which the first visitation of the Speaker should happen; we are happy to have you here.

I have a statement that I will place in the record.

[The statement follows:]

OPENING STATEMENT OF HON. DANIEL PATRICK MOYNIHAN, U.S. SENATOR FROM THE STATE OF NEW YORK

Good Morning.

I welcome you to the first in a series of hearings on the nation's infrastructure. Our objectives for the series are:

to enhance our understanding of the condition of the national infrastructure,

to identify and explain the nature of the problems that confront these systems,

and to generate creative but realistic approaches to assuring that these basic underpinnings of the nation's well-being and economic growth are intact and meeting our evolving needs.

In these hearings, we will adopt a broad definition of the concept of infrastructure.

Certainly it includes the traditional public works categories, such as highways, bridges, and other facilities providing transportation, water resources, and waste management.

But in these hearings, we will also be mindful that the public is most concerned about essential services, rather than the mechanisms by which they are delivered. They are interested in getting to work on time, getting products to market, having an adequate supply of clean water, and in the safe elimination of wastes. This concern requires us to be aware of technological innovations that may have an impact on the way many public works related services are provided. For example, innovations in telecommunications and computer technology, or such basic scientific discoveries as superconductivity, may substantially alter the quantity and nature of travel.

Reaching out beyond the ordinary conception of infrastructure as merely public works will enable us to develop a much better understanding of likely future infrastructure needs and opportunities, as well as more reliable information on the current condition of these vital services and facilities.

From this perspective, we will focus the Subcommittee's inquiry on several major questions.

What are the appropriate roles of the various levels of government and the private sector in providing infrastructure services?

Are we conducting sufficient research and development related to infrastructure, and are we adequately considering the impact of technological innovation on these systems?

What role do infrastructure services play in economic growth and international competitiveness?

How can we best finance the needed rehabilitation, maintenance, and development of our infrastructure?

Do we have a properly trained work force adequate to the task of planning, designing, building, maintaining, and managing our infrastructure services delivery?

Would changes in Federal budget procedures, such as the adoption of a more thoroughgoing capital budgeting process, be useful?

I hope that the witnesses will address these concerns in their comments, and that they will seek to help us understand their implications.

Obtaining public support for even the most visible and symbolically important public works projects is not an easy task.

An historical anecdote illustrates this point.

In the peak years of the cultural achievement of ancient Athens, its ruler, Pericles, commissioned the rebuilding of some of the most important buildings at the symbolic center of the city, the Acropolis, to replace structures destroyed in the wars that plagued this part of the ancient world. He was criticized by many of his fellow countrymen for proposing such a public expenditure for what they said were non-essential frills. Addressing their concerns in a way that would not occur to us today, Pericles offered to pay for the construction himself, provided that this contribution would be noted on each of the new buildings. The Athenians withdrew their criticisms and paid for the construction, which gave the Athenian community architectural masterpieces that have long been identified with the glory of ancient Greek civilization.

The lessons to be learned from this episode are that civilized life entails more than just utility, and though we cannot easily rise above least-cost mediocrity to achieve excellence, enlightened and competent leadership can mobilize civic pride to promote the common good.

Unlike the Acropolis, and with the exception of a few classic bridges, the most part of our infrastructure does not extend into the heavens. Indeed, much of it is obscured to the public eye, and is only noticed when it fails. The recent tragic collapse of the Schoharie Creek Bridge in my own State focused intense public attention on the deterioration of the nation's bridges. While momentary public scrutiny may result in improved inspection programs and better coordination of weather information among State agencies, it does not automatically translate into a concerted

effort to rebuild and rehabilitate the 42 percent of the nation's bridges which the Federal Highway Administration reports are structurally deficient or functionally obsolete.

Much of the so-called "infrastructure crisis" is the result of inadequate maintenance. Infrastructure is uniquely a target for this kind of neglect, because it tends to deteriorate slowly over time. Operating and maintenance funds are generally the first to be cut at every level of government. Perhaps if we named maintainance programs after public officials, as we do new structures, this problem could be solved.

Better maintenance is inherently mundane. Our colleges of engineering do not provide graduates trained in maintenance. Our brightest and most talented engineers want to create something new, rather than to repair the old. Systems are often not designed with maintenance in mind. Maintenance is, nonetheless, a critical factor in rebuilding our infrastructure, and one which will certainly be repeatedly addressed in these hearings.

We begin our review of infrastructure policy at a unique time. In the last year the Congress has legislated the end of two major infrastructure programs.

The Interstate Highway Program, the largest public works program in history, is scheduled to be completed by 1991.

And with the passage of the Clean Water Act Amendments, the Federal Government has committed itself to getting out of providing major grant support for wastewater treatment, turning most of the responsibiiity over to State and local government.

We have built all the dams we need, and built some for which the need was not apparent. Except in high-growth areas, the basic infrastructure of the nation is in place. Thus we are at an appropriate point at which to reevaluate our infrastructure requirements and develop policies to meet future needs.

We will rely heavily on the advice of experts as we embark on this process. The National Council on Public Works Improvement, which was established by Congress for just this purpose, will be delivering its final report this fall. We look forward to working closely with them and with the many talented and richly experienced individuals who assisted them as we move ahead with these hearings.

I plan to seek the advice of Governors, Mayors, and representatives of the professions involved in designing, financing, building, and maintaining our transportation, water supply, wastewater treatment, and other infrastructure components.

I want to emphasize from the outset that idealized notions of policies and programs will not suffice. I want the cold, hard facts from engineers, scientists, economists, and others working with our national infrastructure delivery systems.

Today we are honored to hear form a distinguished group of witnesses who are uniquely suited to help us begin our inquiry based on their vast experience and expertise.

I want to welcome our venerable and revered chairman, Senator Burdick. Would you like to say something?

OPENING STATEMENT OF HON. QUENTIN N. BURDICK, U.S. SENATOR FROM THE STATE OF NORTH DAKOTA

Senator BURDICK. It is a great pleasure to welcome the distinguished speaker of the House, the Honorable Jim Wright, the Chairman of the House Public Works and Transportation Committee, the Honorable James Howard and the Ranking member of the House Public Works and Transportation Committee, the Honorable John Paul Hammerschmidt to give testimony on infrastructure needs, which are of great importance to our respective committees and to the nation. I look forward to hearing your comments and those of the other distinguished witnesses, Professor Wolman and Madam Rutledge.

Today, we begin hearings to discuss the important infrastructure issues that are facing our Nation. I would hope that as we conduct these hearings, we can advance the public's understanding and appreciation of the importance of maintaining the Nation's public works. I believe that an informed public will support our efforts to remain a viable and functioning Nation. I will be particularly in-

terested, as these hearings proceed, in seeing that our country's rural communities are not forgotten.

Webster defines infrastructure as "the basic, underlying framework or features of something." I can think of no stronger underlying framework for the growth of our Nation than our road system. The roads of this country are of special importance in rural areas, particularly to farmers. Without sufficient, well-maintained roads, products cannot move to market efficiently.

Our farmers' need for roads, while always strong, grows greater daily. Over the last five years, railroads have abandoned many miles of rail lines in rural areas, having a direct impact on the use and needs of roads in these areas.

As these rail lines have ceased operation, more and bigger trucks are used to carry products longer distances which, first, increases the cost to farmers of transporting their products; and second, puts a heavy road maintenance burden on the rural areas.

Our small cities and towns are finding it extremely difficult to meet this demand on their own.

But roads are not the only facet of infrastructure about which we should be concerned. We have long taken for granted the clean water without which we cannot live. What has been overlooked is the tremendous cost required to maintain the public works systems that give us clean water.

In order to ensure that we have these systems available, we must develop a climate of public understanding that will permit support for their continued construction and maintenance.

In my judgment, one of the more pressing infrastructure needs of the country is our water supply system. The Congressional Budget Office has calculated that the per capita spending to replace and expand municipal water systems will decline over the next decade by more than 11 percent. At the same time, Congress has imposed new Safe Drinking Water Act standards which these systems must comply with, and many of the older systems in the country have been neglected for years.

What most people don't appreciate is that this is a rural problem as much, if not moreso, than an urban problem. Eighty-eight percent of the water supply systems in the United States serve less than 3,300 people each. This is more than 50,000 systems. These communities have no access to capital markets. The price of water in these communities is more than double what it is in the larger cities. Without some form of partnership between the local communities, the states and the Federal government, these small, rural systems will not able to meet the standards of the Safe Drinking Water Act and will continue to deteriorate.

Another area of concern for me during these hearings will be research and development. A recent study of R&D on public works design, materials and construction works techniques, conducted by the Office of Technology Assessment for this committee, indicates the very low level of expenditure in this area. We need to assess the impact that this low level of research has had. We need to learn whether we are facilitating the optimum amount of research and development by industry and government.

I cannot express too strongly the need for an infrastructure agenda which will continue to ensure that our nation has the basic

and underlying framework, allowing us to remain viable and competitive in the world market and which will permit our citizenry to live in safe and healthy communities.

I wanted to thank you, Mr. Chairman, and again, welcome to our good friend from the House.

Senator MOYNIHAN. Thank you, Mr. Chairman.

Senator Reid, we welcome you here this morning, and if you would indulge the chair and the Speaker, we thought we would go ahead.

Mr. Speaker, this is, as I say, a great honor to this Committee and the Senate itself, and would you proceed, sir?

STATEMENT OF HON. JIM WRIGHT, SPEAKER OF THE HOUSE OF REPRESENTATIVES

Speaker WRIGHT. Thank you very much, Mr. Chairman, for giving me an opportunity to come over here and join with you as we speak out on what is both a pressing problem and a golden opportunity for America. As you pointed out, it is not often that the Speaker of the House testifies before a Senate Committee. This is a rare, in fact, and exceptional occasion.

The hearings that you begin today will examine one of the most serious challenges that face the United States and the American economy. That is, our deteriorating infrastructure.

For several years, we have been neglecting the most basic investment in America. This 100th Congress, I think, has a grand opportunity to reverse the decay that has set in and begin rejuvenating our economic base. It is my hope that we will make a major commitment to do this in the months ahead.

Before I leave today, I want to suggest an idea for how I think it might be done. It will be bold. It will be innovative. It would be a new approach to things. But I see before me the kind of people who are receptive to bold and innovative and new ideas. Therefore, I am delighted with the opportunity to discuss with you this idea.

I commend your foresight, Mr. Chairman, in calling these important hearings. You have a distinguished record of accomplishment in public works, as you have in many other areas of public activity. Last year, as we know, you were actively involved in the writing of the water projects bill that was enacted in law. This year, you were one of the leaders in the Senate in the successful override of the veto of the highway bill.

Before proceeding, I want to express also my admiration for the Chairman of the Full Committee on Environment and Public Works, Senator Quentin Burdick, with whom I served in the House many years ago. I was very happy to see him become Chairman of the Full Committee this year, and I applaud Senator Burdick for helping to establish this specific subcommittee to deal with the critical issues of public infrastructure.

What is infrastructure, after all? It is a word that simply describes America's lifeline network. It is the whole system of roads, airports, pipes, wires, public buildings, dams, and the waterways and other facilities that sustain our very existence as a people.

It brings us water, electricity, gas; it disposes of wastes. It connects us to our jobs and our family and friends and with the world at large.

This amazing lifeline network is critical to our daily lives as well as it is to our national survival. Yet it is crumbling. When traffic from the North Main Viaduct in my hometown, Fort Worth, is stopped or restricted to one lane because the bridge is disintegrating, having been built in 1902——

Senator MOYNIHAN. 1902?

Speaker WRIGHT. 1902. That exacts, obviously, a heavy toll in wasted time upon everybody in the community. But that is not much compared to what has happened to such cities as Pittsburgh and Cleveland, which have suffered severe economic loss because of the deteriorating nature of bridges and the fact that they simply cannot connect people to their places of work and places of business opportunity. When aging pipes and leaky water mains in some of our older cities cost those cities as much as one-third of their daily water supplies, well, then I think that needlessly increases the cost of doing business for everybody in the city.

It is regrettable that our commitment to the national infrastructure has receded over the past several years. During the 1960s, Federal investment in infrastructure increased by 24 percent. During the 1970s, I am told by the Congressional Budget Office that it increased by 45 percent.

During this decade, we have fallen backward. While the backlog of need is long, our Federal commitment has declined by a very substantial amount. It also should be pointed out that the state and local governments are not going to be able to make up for these infrastructure cutbacks on their own without some activity at the Federal level. Total government investment, including state, local and Federal, total government investment in capital goods as a percent of our Gross National Product has decreased by 45 percent, almost cut in half, from what it was a generation ago.

This policy of disinvestment has occurred at the very time when our public demands have been growing more rapidly than ever. The last commercial airport completed in the United States was opened on January 13th, 1974, 13 years ago, in Dallas/Fort Worth. Meanwhile, in these intervening 13 years, while no new airports have been constructed, the number of commercial flights has just about doubled. I don't know that I have to describe the heavy penalty that has been exacted in delays, inconvenience to the public and financial loss as well as a loss in safety and security.

We have 1,000 jails in the country that are jammed to capacity, and cities such as Washington, D.C. are releasing criminals on the streets before they finish their sentences so they can make room for more of them. That is not a phenomenon that is limited to Washington, D.C. It is happening in my city and my state and your states, as well, I think, because it is occurring across the United States.

About 2 weeks ago, a historic reminder occurred to us in my town, Fort Worth. A man was released from jail because it was overcrowded and they had to make room for other people. He was not known to be violent, but he was predictable in his troublemaking because he had done it repeatedly. He concealed himself in a

women's restroom in a fine hotel there in Fort Worth and criminally assaulted a woman, just hours, just hours after he had been released from jail, because the jails are overcrowded.

One out of every four bridges in the United States is unsafe. That condition endangers millions of motorists every day, of course. Mr. Chairman, these dangerous trends, I think, cannot be allowed to continue. We have to launch a comprehensive rebuilding program to assure that America's future will shine as brightly as our past.

This morning, I want to talk about two types of infrastructure. Let's start with transportation. Last year, we celebrated the 30th anniversary of the Interstate Highway program, the biggest and most expensive public works undertaking, as you pointed out earlier, Mr. Chairman, in the history of the human race. It has tied our country together; enhanced our mobility; saved lives and time and money and stimulated at least $40 in private investment for every dollar of public money spent on the highways. Yet it hasn't added one single penny to the national debt. I think by any yardstick or standard, it measures up as an unqualified success.

Unfortunately, the Nation's inattentiveness to proper maintenance has begun to mar even this great American achievement. According to the Department of Transportation, about 65 percent of our interstate highways today are no longer in very good condition. Even more frightening is the fact that 14 percent of the bridges on the interstates now are rated as deficient.

As we examine the road system as a whole, we find that the dilapidation is even more rampant. Motorists across the country suffer a serious inconvenience from the fact that 4,125 bridges are closed to all traffic. Bad highways increase the operating costs for users by about 40 percent. Unsafe roads and bridges, of course, exact a toll on innocent lives.

Recently, we heard that the roads on our Federal aid system described as "pork." Well, another President 20 years ago understood their social and economic importance. "A highway is more than than a ribbon of concrete," said Lyndon Johnson. He said, "It's a way for people to travel, and it all ought to serve all of their human needs."

Let's consider the serious problem of aviation. Last year, the FAA counted more than 410,000 air traffic delays which cost the economy an estimated $4 billion. This year, the conjestion has worsened, and there has been a sharp rise in errors by pilots and air traffic controllers. Despite the fact that the airport and airway development trust fund has a surplus of $5.2 billion, we have not made the expenditures necessary to modernize facilities and increase our airport capacity. It is estimated that that fund, made up of user taxes, if we don't change our pattern, will reach $11 billion in surpluses in 1991.

That money cannot legally be spent on any other purpose. And yet there it sits. I would just like to suggest that users of this system, by law, have put money into this trust fund, which, by law is dedicated to the maintenance of our airway and airport system.

If a private trustee had behaved in the manner that the Federal government has behaved in during these last few years with re-

spect to that public trust and those public monies, then that private trustee would be subject to a suit for breach of fiduciary trust.

The budget cuts in mass transit, I think, may have been even more cruel, since that is the one component of our transportation system that is relied upon mostly by the poor. Since 1980, Federal funding has been cut by 41 percent in constant dollars for public transportation.

America's vital waterways and ports also are being neglected. The average age of 184 principal locks in the inland waterway system is 40 years, 40 years old. Ninety-one locks are over 50 years old. Most of those require major rehabilitation now.

Many United States ports are obsolete and must be dredged if they are to handle world class shipping. Now, the neglect of our ports and our waterways simply adds to the cost of moving American-made and American-grown products to market and thereby increases our annual trade deficit.

The second type of infrastructure on which the public depends involves utilities, waste management, water and communications. That the extent of the waste disposal problem of the United States has grown cannot be overemphasized. Approximately 450,000 tons of waste are being generated every day, 95 percent of which are dumped in landfills that are rapidly reaching the end of their programmed capacity. The 3,100 tons of homeless garbage floating in a barge off New York City may be a harbinger of conflicts to come as communities fight over disposal rights.

In 1979, the dam at Toccoa, Georgia, collapsed. President Carter ordered a survey of all the dams in the nation. The Army Corps of Engineers reported that 3,000 dams in heavily populated areas were unsafe. In July 1982, the water system failed in Jersey City, leaving 300,000 people without drinking water for six days. There have been comparable water supply failures in Boston and in New York.

This year Congress succeeded in passing a Clean Water Bill with the help of those of you on this panel. While this law represents a very significant first step, I don't think we can forget how much more than the $18 billion it authorizes over a period of years will be needed to accomplish the job. It comes to about, what is it, Chairman Howard, about $2.4 billion annually on an average that is authorized in this bill. Yet in 1980, we were investing $5 billion annually in clean water.

So as big as it may sound, $18 billion over a period of years, when you compare it with the need is not that much. Just a few years ago, the Environmental Protection Agency told Congress that $108 billion would be required by the year 2,000 for sewage plant construction alone. Not all of that, of course, is Federal money. But it cannot be generated without a degree of Federal assistance.

Communications may be the one type of our infrastructure where our facilities are not wearing out more quickly than they are restored. That is because we continue to develop new technology.

I take note of the comment by the Chairman of the Full Committee that research is one of the areas of infrastructure that he wants to investigate in these hearings. I had planned initially to

say something about that, because there is an area that does have some promise.

While there are some ways in which we should be doing better—for example, it took us 32 months to replace the weather satellite when it broke down in 1984—the general excellence of our communications system is a standard we should seek for all of our infrastructure. And truly, research can lead us in that direction.

So far, I have just been describing the seriousness of this situation. Let me suggest some solutions. We have to begin, I think, by recognizing that rebuilding America is not an option or a decision. Sooner or later, we are going to have to do the work. Every year we delay, the cost mounts.

Let's come to grips with the immensity of this infrastructure gap. A few years ago, the Joint Economic Committee found that an additional $25 billion of investment would be needed annually until the year 2000, $25 billion a year if we keep up with the need. Now, I suspect that if their analyses were redone today, it might suggest a higher cost than that. Not all of this, once again, is a Federal requirement. But without the Federal initiative to stipulate and lead, it isn't going to occur, as our cities and local units of government are strapped more than ever by the economic demands of the vicissitudes in the economy. The shortages of funds and the withdrawal from the areas in which the Federal Government had been matching their efforts places upon them burdens which almost make it impossible for them to do this job alone and unassisted.

There is only one sensible course of action, it seems to me, in the face of our decaying lifeline network, and that is to rebuild America. Fortunately, we have the guidance of two of the most successful public works programs in our history. And I just want to conclude by mentioning these two, because I think they gave us from our past some thoughts about how we can proceed in the future.

First is the WPA and the PWA in the 1930s that put millions of Americans to work and created literally thousands of badly needed public facilities all over this land that are still in existence serving and blessing the communities where they are located.

In my Congressional District in north Texas, one county, there are at least 50 projects still in use, on which people rely daily. I did a survey recently of their projects built by the WPA 50 years ago. For this hearing, I have assembled some photographs of several of those projects, just a few of them, in my area. These have survived to bless the area for half a century. They continue to generate dividends on the public investment that this country made over 50 years ago.

Any Member of Congress, I suggest, surely, any Member of the United States Senate, can find a multiplicity of such projects that people probably don't realize were generated by the WPA or the PWA. Surely, it is more honorable to build something and to spend money that will have a lasting legacy of service to our communities and our states and our nation than it is just to spend the money on welfare.

Surely, it is a more honorable thing to provide useful work and opportunities for America's jobless and unemployed people than it is simply to give them hand-outs.

The second great success that I want to point to was the Interstate Highway program, which I mentioned earlier. It was launched during the Eisenhower administration. That program is financed entirely on a pay-as-we-go basis using highway trust funds. It doesn't add a penny to the national debt. In the budgetary strictures that we face today, that ought to be a shining light to us.

I can remember that in my first year in the Congress, 1955, the Clay Commission, appointed by President Eisenhower, reported its recommendations. It said that we were putting 63 million motor vehicles on a road structure designed for about half that number. The result was loss, delay, accidents, deaths and so forth. It made the case very well.

They recommended this network of highways that would tie together all of our cities of 100,000 people or more, but they recommended it on a borrow-and-spend plan. They wanted to sell bonds. That was the original Clay Commission recommendation.

Some of us on the committee to which I had just been assigned put a pencil to that and discovered that the bonding proposal, even at the relatively lower rates of interest then in place, would have cost the taxpayers $1.55 for every dollar's worth of highway they built if you paid the bonds off on schedule.

So some of us asked for an appointment and went down and talked to President Eisenhower. We said to him, "Why don't we pay as we go so we don't start building this and have a responsibility for paying off on this on another generation down the road after some of these highways have deteriorated? Let's pay for them as we build them. Let's have a trust fund and build what we raise every year. Spend that much money on building for the needs of today so that tomorrow the public can use their money to spend on the needs of tomorrow. That way our children won't have to pay for the stuff that we have done in our time and have been using up and wearing out before they reach taxpayer's age."

President Eisenhower was much to his credit, not rigid, not inflexible. He listened to that and began to nod and he said, "Well, gentlemen, you have convinced me. I think that's a splendid idea. If you think you can sell that to the American people, you have my blessing."

We did sell it. It wasn't any problem. We sold the idea of a road user tax put into a trust fund dedicated to the building of the roads which will serve the country. That is going to serve America for many, many years to come because we had the vision to do it and we had the determination to do it.

What I suggest is that rebuilding America is going to require a combination of those approaches. By combining the innovative spirit of the WPA and the dedicated financing of the interstate highways, we can begin that long process this afternoon.

I suggest that we ought to create a Build America Trust Fund made up of a variety of taxes, paying as we go, so that we don't add a penny to the national debt. Let us accomplish in our time, and in our generation, what this generation ought to be expected to do for our future generations, instead of putting it on the credit card and passing the bill on to somebody else to pay for it while we wear it out and use it up. That is my suggestion.

America may be at the crossroads of a decision: whether we create the future or simply let it happen to us. The lessons of our own past speak not of our limitations but of our capabilities. Where there is no vision, the people perish. That is what Solomon said. I think we need to have a vision of the American spirit reborn. This country is not finished. We still have a message and a mission and a future. Our greatest national achievements have come in responding to challenges. We don't need to shrink before them today.

When the Japanese cut off our rubber supplies at the beginning of World War II in 1941, we didn't just sit and wring our hands and say, "That's a job for private industry" or, "That's a job for the free markets," or, "That's a job for the States or for the cities." Franklin Roosevelt called in Bernard Baruch and said, "We simply have to have it. We have to have a synthetic rubber industry." We didn't know how to do it, but we needed it. When the troops flew into Berlin, they did so on a new kind of rubber made in the United States.

When the Soviets preceded us in space in 1957, we didn't just wring our hands and say, "Oh, my goodness, what a dreadful, terrible thing. Let's wait for private enterprise and the free market and the States and cities and the other people to do something about that." Of course we didn't. We needed John Kennedy.

I remember sitting on the House chamber that day when he spoke in 1961 and he said, "We will have a man on the moon in 1970." The audacity of the thing shook us into action. Hardly anybody understood how it could be done. But energized by his drive and his determination and his vision, we did it. We had a man on the moon by 1970.

We didn't hide from the problem; we didn't say that it ought to be shunted off to local units of government. We didn't say they ought to be handled by the free market. We said, "Here's a job for America," and we did it and we did it together. We can be that country again. I think we are that country still. With enough imagination, enough dedication, we can revitalize the infrastructure of this nation. We can build America. We can give America the economic base it needs to remain a world leader in the 21st century. We can renew the struggle for the American dream in which each generation looks forward confidently to more learning, more opportunity, a higher standard of living and an even better life for American children yet unborn.

Mr. Chairman, I thank you for the invitation to be here. Jim Howard is going to tell you a whole lot more than I can tell you about the needs. He has been studying them extensively. He has been drawing careful plans; he has been going around this country. He and John Hammerschmidt, who also is here, and who I want to commend to you. They have an all-American committee over there. They don't divide it up into partisan lines. Of all the committees on the House side, I don't know of one that is more bipartisan or nonpartisan than the Public Works Committee generally has been.

I want to commend the dedication and patriotism of this country, of these two gentlemen, Jim Hammerschmidt, the Ranking Minority Member, and Jim Howard, the Chairman of that Committee, both of whom I have had the pleasure to work with for many

years. I thank you very much for allowing me to share this time with you.

Senator MOYNIHAN. Mr. Speaker, we thank you for extraordinary testimony on an extraordinary explicit proposal. We know that your duties in the House are calling you away, but do you have a moment that you might respond to just a few questions?

Speaker WRIGHT. I would be glad to try, Mr. Chairman. The House is already in session. Tom Foley is presiding.

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator REID. Mr. Chairman, I wonder if I could ask unanimous consent that my opening statement be part of the record.

Senator MOYNIHAN. Of course. I wonder if you might like opening questions.

[Senator Reid's statement follows:]

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Mr. Chairman and Members of the Subcommittee, I am pleased to participate in today's hearing—the first in a series focusing on the nation's infrastructure needs. It is indeed an honor to have the Speaker of the House appear before this Subcommittee to outline his concerns about the infrastructure. During my two terms in the House of Representatives I enjoyed working with the Honorable Jim Wright. As Majority Leader and now as Speaker, Jim Wright enjoys the sincere admiration of his many friends and colleagues and quite frankly, I miss working with him on a day-to-day basis. The Speaker has been quite involved in the area of public works and I look forward to hearing his statement.

I also look forward to the testimony of Chairman Jim Howard and Ranking Minority Member John Paul Hammerschmidt of the House Public Works Committee. We will all benefit from the information which they have collected over the years while conducting various field hearings across the country on the state of the nation's infrastructure.

In addition, Professor Wolman of Johns Hopkins University, legend in the area of public works, will present testimony; along with Nancy Rutledge of the National Council on Public Works Improvement. The Council was created by Congress in 1984 to provide a comprehensive overview on the state of the nation's infrastructure; addressing the age and condition of public works as well as finance methods and trends.

As defined by Webster's Dictionary, the term "infrastructure" means: the underlying foundation or basic framework; as of a system of organization. The infrastructure includes all types of public facilities—namely the nation's highways, roads, bridges, sewer and wastewater treatment systems, mass transit facilities, and public buildings.

According to an Office of Technology Assessment staff paper review, requested by the Senate Environment and Public Works Committee, the investments by federal, state and local governments in public works was $97.3 billion in 1984—accounting for 24 percent of all new construction annually. Obviously the importance of our nation's infrastructure cannot be overlooked. It is critical to our ability to maintain all forms of domestic economic activity, including job creation, and international competitiveness as well.

In light of these factors, it is particularly distressing that the nation's infrastructure is in a state of decay. The OTA staff paper providers a succinct, but detailed outline of policy considerations necessary to address various infrastructure needs, focusing primarily on research and development for construction technologies and materials.

The National Council on Public Works Improvement also prepared a report to the President and to Congress on the state of the nation's infrastructure. Both efforts call attention to the problem and the need for a comprehensive policy to recognize the benefits derived from positive policies involving the infrastructure. For example, long term investment in research and development to improve construction materi-

als for roads, highways and bridges will enhance safety and substantially reduce energy consumption.

Mr. Chairman, during subsequent hearings I would like to further discuss the efforts of the University of Nevada at Reno to establish a national bridge engineering school. The proposal calls for the renovation of an existing laboratory in order to establish a Bridge Engineering Laboratory Center to concentrate on two areas of bridge study. These areas are an analysis of the strength, behavior, repair and retrofitting of bridges, as well as the rehabilitation of pavements. Center activities will focus on design and construction of new bridges, and repair and retrofit of existing pavement surfaces and bridges. What is unique about the proposal is the center's emphasis on full-scale bridge field testing. Comments about the UNR proposal from our distinguished witnesses will be appreciated.

Thank again for holding this hearing on a matter of great importance to all areas of the country.

Senator REID. I just want to say, Mr. Speaker, that one of the things I miss about the House is you. You have been an inspiration to many of us, and I think one of the things that I am impressed with is your roots. To come over here and spend the time that you have on one of your first loves, that is, the Public Works Committee, I think is outstanding. I am impressed with your testimony because it wasn't general; it was specific.

I would just state, Mr. Chairman, that sometimes—and the Speaker made this very clear—we have an obligation as a government to do certain things. If you go back to the Bible, the free enterprise System, "The Wealth of Nations" by Adam Smith, he set forth in that publication what government's responsibilities were, and public works is set forth very clearly in "The Wealth of Nations" as a responsibility of government.

I think sometimes we forget. We tend to apologize that government is involved in certain things. I participated with you, Mr. Chairman, at a press conference on a previous occasion about changing the welfare system and bringing back some of the things we have learned in the past.

I think, Mr. Speaker, you have been very concise and to the point on that, and I congratulate and applaud you on your testimony here today.

Senator MOYNIHAN. I couldn't agree more. I am sure we all agree. The Speaker has been a familiar influence on events, but now we learned that he was acting like a Speaker almost from the day he arrived there.

Speaker WRIGHT. Thank you for the comment, to my distinguished friend, Harry Reid. I feel at home, as a matter of fact. I look around this panel, and five of the seven of you are people I have served with in the House. It makes you feel at home.

Senator MOYNIHAN. Our Chairman Emeritus is here. Mr. Stafford, do you wish to welcome our colleague?

OPENING STATEMENT OF HON. ROBERT T. STAFFORD, U.S. SENATOR FROM THE STATE OF VERMONT

Senator STAFFORD. Thank you very much, Mr. Chairman. It is a pleasure for me to welcome the Speaker here. I have served in the Congress, on one side or the other, almost as long as the Speaker has. It seems almost like old home week to see John Paul Hammerschmidt and Jim Howard here. I see, just behind Jim, Dick Sullivan. You could almost start another committee conference on highways right here.

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Mr. Chairman, I do have an opening statement. In the interest of time, I will ask unanimous consent that it appear in the record.

Senator MOYNIHAN. All such statements will be included.

[Senator Stafford's statement follows:]

OPENING STATEMENT OF HON. ROBERT T. STAFFORD, U.S. SENATOR FROM THE STATE OF VERMONT

Mr. Chairman, I am pleased to be here this morning and I want to join with you in welcoming our distinguished witnesses.

There are two brief observations I would like to make as these hearings on infrastructure begin. The first is that this Committee has had a long history of involvement with public works. During the last 20 years of that involvement, I believe the most important contribution of this Committee has been its consideration of public works in the context of protecting our environment.

The word environment was officially added to the name of this Committee in 1977. But, in fact, protecting the environment was made a very important part of the Committee's legislative agenda a decade before that with the enactment of the National Environmental Policy Act and 4(f). These landmark environmental laws along with the Clean Water Act, the Clean Air Act and others have dramatically changed the way we approach our public works infrastructure. and I believe have changed it for the better.

Now we do not even think of building a highway through the middle of a park. We have a much greater understanding of the cultural and economic benefits of preserving our historic buildings and bridges. I believe the country realizes how finite our natural resources are and that public works facilities must be built and maintained in an environmentally responsible way.

As this review of the condition of our infrastructure proceeds, I hope this Committee will continue to pay close attention to solutions which will preserve and enhance the quality of our natural environment.

The second observation I want to make is that I am very encouraged that local governments are taking responsibility for solving their infrastructure problems. This has been particularly true since 1980, and in 1984 local governments accounted for 50 percent of the total public works investments. Localities are finding ways to provide the infrastructure facilities which address their unique needs, and they should be encouraged to continue to do so.

Mr. Chairman, I look forward to hearing from our witnesses today.

Senator STAFFORD. I don't have any questions for the Speaker. I am just delighted he found the time to come over here.

Senator MOYNIHAN. Senator Graham, as a Governor, has surely encountered these questions. Would you like to say something to the Speaker?

OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE STATE OF FLORIDA

Senator GRAHAM. Thank you, Mr. Chairman. I would also ask unanimous consent to submit an opening statement.

[Senator Graham's statement follows:]

OPENING STATEMENT OF HON. BOB GRAHAM, U.S. SENATOR FROM THE STATE OF FLORIDA

Mr. Chairman, I commend you for bringing the issue of infrastructure to the forefront through this hearing and subsequent hearings scheduled for September. We often take our infrastructure for granted, much of it hidden from public view. Without our water supplies and treatment, highways and bridges, utilities and communications, much of our current efficiency and quality of life would not be feasible. Because much of the physical evidence of this backbone of our country is at the periphery of our vision, we must take great strides to assure that it is not neglected, or even ignored.

It is time that we begin exploring ways to improve our infrastrcuture—to take an inventory of our needs and to find innovative means by which to meet those needs. In my State of Florida, we have even greater incentive to approach this issue we are

growing at the rate of 350,000 people each year. That amounts to a modest-sized town—each year. This rate of growth demands that infrastructure be expanded and improved continually, with an eye toward advanced planning each and every step of the way.

Mr. Chairman, your holding these timely hearings will help us to explore avenues of improvement and innovation regarding our Nation's infrastructure. I welcome our colleagues Speaker Wright, Congressman Howard, and Congressman Hammerschmidt, and look forward to their testimony. I am also eager to hear Dr. Wolman and Ms. Rutledge share their expertise on this issue with us.

Senator GRAHAM. I would like to use my time first to commend the Speaker for a very thoughtful and stimulating statement. One aspect of it that I particularly liked was his use of his home town as an example. Sometimes we are criticized as being parochial when we focus on our own communities. The reality is that America is a composite of Fort Worths.

To the degree that we feel pride and enthusiasm and sense of personal commitment to our own community does not in any way degrade our ability to share that same enthusiasm for all America. In fact, it gives it a definite texture, which I think you have so admirably utilized and demonstrated this morning.

I believe, Mr. Speaker, that unfortunately, for the next immediate period, we are likely to be involved in a process of not very creative Federal policy, as we try to bring our Federal deficit under control by some meat ax processes.

But the excitement of your statement is that there is going to be a day coming where we are going to be asking some very fundamental questions: What type of responsibilities will the Federal Government undertake for the 21st century? How will we become architects, as we try to shape the vision of what that 21st century should be?

I know of no place that is more exciting to spread our sheets and get out our drawing boards than to question how do we rebuild the physical America? You have started us with a good design sketch of what that physical American 21st century might look like, and it is going to take a lot of hours to fill in the details. I am happy to be a junior draftsman in that process.

Speaker WRIGHT. Thank you very much, Senator.

Senator MOYNIHAN. Senator Symms, let's give you an opportunity.

Senator SYMMS. Thank you very much Mr. Chairman; Mr. Speaker, welcome. I would say welcome also to my friends, Chairman Howard and Congressman Hammerschmidt.

I will be very brief. I just want to say, Mr. Speaker, that one thing that has been troubling me and that I think the Congress should address now is the conflicts that we have about taxes and spending. It appears to me, with all the problems of the infrastructure, that one area that we should call time out on is doing anything to the future of municipal bonds. There has been a dampening of enthusiasm for municipal bonds because of the fear that somehow, we are going to tax them.

Do you want to make any comments on that? Do you think that is an area where the Congress ought to make a statement to the effect that the Congress is not going to tamper?

Speaker WRIGHT. Senator, I am against taxing municipal bonds, really. I can't make a commitment for all of us. That is the way I feel.

Senator SYMMS. I appreciate hearing the Speaker say that. I think it is important, because I know we have a large task ahead of us, and we don't want to deny the communities the opportunity, as I see it, to finance some of these public works projects through their local governments. We have already done some things that have made municipal bonds somewhat less attractive than they used to be, although, with the alternative minimum tax, they are about the only game in town left for people looking to reduce their tax liabilities.

Maybe a statement from the Congress of a technical nature.

Senator MOYNIHAN. I want to encourage my friend. The Speaker has just agreed with you.

Senator SYMMS. I also appreciated your comments about the trust fund. I would just say that I believe that it is time for the Congress to take a look at the Highway Trust Fund and the Airport Trust Fund and make a decision either to reduce the taxes on them or spend the money, but stop accumulating this huge surplus when we have so many needs.

We have a $10 billion-plus account in the Federal Highway Trust Fund now accumulating money at $400 million a year. I think there are places where we can use it. I hope we can.

Mr. Chairman, I love the statement that the Speaker made about President Kennedy, and I have been using that on another subject which relates to the Strategic Defense Initiative. I think that we all need to remind ourselves that President Kennedy, when he made his statement, he said, "We are going to put a man on the moon. We are not just going to do research and see if we can do it, we are going to do it."

I think we need to do it with our infrastructure, too. Thank you very much.

Senator MOYNIHAN. Senator Pressler.

Senator PRESSLER. I want to welcome my colleagues from the House and say that their wonderful testimony will be put to proper use.

I am also very happy to hear that at a later date we will be hearing from the National Council on Public Works Improvement. Part of their testimony, as I understand it, will be about rural and small communities.

Mr. Speaker, you and I know that the roads, drinking water, airports, and rural and small towns really have become real problems. It is something that I am going to focus on with this legislation very much, because that is what I represent, just as I know you represent several of those smaller cities and towns also. I do welcome you here, and I thank you very much for your testimony.

Speaker WRIGHT. Mr. Chairman, may I make a very brief comment, both to your comment with respect to the needs in small communities and rural areas and to Senator Graham's comment about the natural tendency on the part of all of us to be somewhat parochial? After all, if we don't have a vital interest in our own respective areas, nobody else is going to do it. We have got to take the lead.

I was mayor of the town of, at one time, about 8,000 people. It grew a little bit. It is not a big town today, it is not a big city. That was my induction into politics.

I emphatically agree with you. We mustn't allow ourselves to be just hypnotized by the problems of the cities and the big cities alone, because it is a national problem. The infrastructure problem is a truly national problem. By the same token, what happens in New York City has a direct bearing on all of us. I can remember a few years back when New York City faced its financial crisis. If its bonds had been allowed to default, for example, the cost of bonds, as was mentioned by Senator Symms a little bit ago, from every city in America would have skyrocketed, and every taxpayer and every little community, mine and yours and all the rest of them, would have had to pay a penalty for letting cities like New York default on its bonds.

At that time, I took a position that the citizens of the City of New York were paying about nine cents out of every dollar that went into flood control projects and highway projects and things like that that happened to my State. Maybe we had a responsibility all to one and another, and I noticed that the New York Times thought my position was in pretty good shape.

It is a funny thing, Senator Graham, recently, when I showed a particular interest in the financial plight of certain institutions and individuals in my State, that same New York Times said it was parochial. You know, you can't have it both ways. I think all of us have got to be all for one and one for all. I agree with you very much. We know where the problems are in rural America. The rest of us with rural roots need to not make too much fun of those city slickers, because they own part of it, too.

Senator MOYNIHAN. Before you leave, in terms of what you have up there, our guests can't see the chart. There's the North Highmount Elementary School. There is the Old Fort Worth Library; Old Fort Worth City Hall; and the Will Rogers Coliseum.

Speaker WRIGHT. Will Rogers Coliseum, because it is a great big building, a huge structure, it cost $1.9 million, almost $2 million then in 1930-whatever—1936, maybe, 1937.

Senator MOYNIHAN. Any program that builds places where children go to school or democratic government takes place; where people can assemble and a half century later looked at it and say, it was a queer thing doing, but by golly, they did it a little bit better.

We would have missed that era if we didn't have the sense. Thank God, we did. Mr. Chairman, would you like to conclude here?

Senator BURDICK. We are certainly pleased to have you here today. I have been thinking of you and your remarks. Maybe we should start a new exchange program here that would be good for the country. Thank you for your testimony.

Speaker WRIGHT. Thank you very much.

Senator MOYNIHAN. The committee will stand in recess for a moment so we might thank the Speaker personally. I know we would like to do that.

[Short recess.]

Senator MOYNIHAN. The committee will now resume its regular session. We have the high honor and distinct privilege of having before us our counterparts. The extraordinarily respected, admired Chairman of the House Committee on Public Works and Transportation, Jim Howard and his ready associate, Jim Hammerschmidt of whom the Speaker spoke.

Before welcoming our colleagues, let me just say that we are well behind you in this exercise. Last year, you produced that much of the requirement in H.R. 1776, the basic document from which we proceed to this enterprise, which is as much or more concerned with you, Mr. Howard and Mr. Hammerschmidt, than we have done. We are following your lead here to ask for the direction in which way we should go.

STATEMENT OF HON. JAMES J. HOWARD, CHAIRMAN, HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

Mr. HOWARD. Thank you very much, Mr. Chairman and members of the committee. We certainly appreciate the opportunity to be here. I believe that we also are most appreciative of the fact that your lead-off witness here was the Speaker of the House.

Senator MOYNIHAN. I think it speaks to the influence you have in that body.

Mr. HOWARD. I don't know as to my influence, but I would like to point out that, the Speaker is a public works person, having been a senior member of that committee when I arrived many years ago. As you know, 10 years ago, Jim Wright was elected to the position of Majority Leader in our caucus by one vote, which now makes him Speaker of the House, and many people wondered whose vote it really was that put it over the top. I just want to say for the record that was my vote.

If the Speaker had not become Majority Leader, he would be Chairman of the Committee on Public Works and Transportation.

So I am very happy about the Speaker's success. Also, Jim Wright being such a doer during the last fall in preparing for this 100th Congress, he was very anxious in having H.R. 1, as it was, the Clean Water Bill; H.R. 2 as the Surface Transportation Act; and he was pushing quite hard to have H.R. 3, the Infrastructure Act. Our committee was not quite ready for that hectic schedule, but Jim Wright certainly was.

So I guess we would just wish to commend you and the entire subcommittee for holding these hearings on this very, very important subject. I would like to say, Senator Moynihan, along with all others, we strongly believe your able leadership as Chairman on the Highway Conference Bill enabled us to produce the final legislation as quickly as we did. I am just hoping we can duplicate our success on that bill with an even larger, more ambitious infrastructure program.

We all worked long and hard on that Highway Bill to conclude the construction of the Interstate Highway System, which, over three decades, has cost more than $100 billion. The Interstate system has brought about a revolutionary change in our country by linking city to city and city to suburbs with massive ribbons of con-

crete. It has made possible the predominant themes of recent years: mobility and suburbia.

In the last two decades, the Federal Government has also initiated and funded a smaller but also massive program of construction of sewage treatment plants to provide clean water for the citizens of our Nation. The decision was made that expenditures were necessary to provide our people with one of the essential elements of life. In the years since the passage of the Federal Water Pollution Control Act in 1972, we have spent $48.2 billion for clean water.

Both the surface transportation and clean water programs have been reauthorized in the Congress, a combined $107 billion undertaking. That is a remarkable achievement for any Congress, especially in the first four months of the session.

These bills, which extend the huge programs of the past decades, however, have not been nearly enough. Our current efforts for transportation and for clean water have left us woefully short of meeting the real needs of the nation. We have attempted with tightly-controlled Federally-initiated programs to meet the nation's needs, but much more is still left to be done. The demands for more funding for infrastructure seem to be growing by leaps and bounds.

In recent years, there have been numerous studies of the infrastructure problem that demonstrate the need for additional hundreds of billions of dollars by various levels of government. The estimates are so long that they become paralyzing. In these times of budget restraint and fiscal responsibility, only the Pentagon could cope with the size of the estimates that have been made on infrastructure needs.

These are some of the recent estimates that have been made on our transportation, wastewater treatment and water supply needs:

The Joint Economic Committee, in its study titled "Hard Choices," estimated that we will need an additional $450 billion by the end of the century based on current levels of expenditures;

The Congressional Budget Office, in its 1983 study, cited the need to increase annual infrastructure spending by $18 billion;

The Association of General Contractors estimated total transportation and water needs of $2.3 trillion;

The Environmental Protection Agency, in its 1986 "Needs Survey Report" to Congress, said $76 billion will be necessary just to construct sewage treatment plants;

The Federal Highway Administration, in its Eighth Annual Report to Congress on the Highway Bridge Replacement and Rehabilitation Program, found that the Nation has 243,646 deficient bridges that were functioning as nearly obsolete or structurally deficient at the end of 1986. That is 42 percent of the total bridges, which will cost $51.4 billion to upgrade or replace. We have, on the average, a bridge collapse in this nation on the average of one every two days.

The Federal Highway Administration also estimates that $315 billion will be needed to maintain the Federal-aid highway system through the year 2000 at 1983 conditions.

I strongly believe that it would be irresponsible for us as public officials to ignore these needs. Government has a responsibility to support an effective transportation system and water supply system to maintain the vitality and well-being of the Nation's econ-

omy. Government responsibility is a long-standing principle of public works, the vocal advocates of privatization notwithstanding. The government must perform these functions. Private industry simply will not do it.

I urge that the advocates of privatization refer to their 18th century philosophical forerunner, Adam Smith, who wrote in 1776 that the three essential functions of government are defense, legal protection and public works.

Smith recognized 200 years ago that individuals and groups of individuals would never get involved in public works construction because there was not enough profit in it. He said government must perform these functions because of the benefit to the society as a whole.

There has also been the mirage held out by many that the infrastructure problem will be solved by State and local governments. For whatever reason, that doesn't seem to happen, either. In the two decades ending in 1982, state and local capital spending dropped from 2.2 percent of the Gross National Product to 1 percent. During that same period, the Federal investment remained at about 1 percent annually. We cannot pass the responsibility for action to the states, nor can we rely on the States to take the initiative.

Our experience with the need for rehabilitation in the highway program indicates that. Back in the fifties, we told the States, "We will pay 50 percent." It is now 75 percent of the non-interstate highway system; 80 percent for bridges; and 90 percent on interstate for construction.

When construction is completed, the states are to have the responsibility of maintaining the system. However, we see that hasn't been done. That is why the Federal government is involved more and more in legislation in this area.

During the last two Congresses, especially the 99th, the Committee on Public Works and Transportation devoted a great amount of effort to gathering information on infrastructure problems and proposed solutions, as is being done in the hearings held before you. We held hearings around the country, including a New York hearing, and we compiled a 2,122 page hearing record.

We heard a great deal about the infrastructure problems. We heard from public officials in the East, the West, in North Dakota, Florida, Colorado, Texas, and Indiana. We heard a lot about plans to spend any and all money the Federal Government might dispense. When we were in Denver, we heard from a county official from rural North Dakota who had one bridge that required approximately $20,000 for repairs to it. He had a big problem in asking for a tax rate increase of 1 or 2 mill. I haven't heard the word mill since I was in sixth grade.

We realized at this time that this country official, with the recourses he had, had every bit of a financial problem that Eddie Koch has with the resources he has. This is a universal problem, just as important to the smallest rural areas as it is to our very populous areas.

As I mentioned previously, we found that local officials were ready and eager to spend the Federal money on their very legitimate infrastructure needs. What we didn't hear in those hearings,

however, at least to the satisfaction of many of us, was a positive suggestion for finding the money to pay for this program. In fact, we were disappointed that hearings that were set up solely for that purpose did not produce the type of result we were seeking. I hope that as we continue this process, we will develop some solutions. We might even have some solutions of our own.

In the last two Congresses, I introduced the National Infrastructure Act, which was based on the 1984 Joint Economic Committee Report entitled "Hard Choices: A Report on the Increasing Gap between America's Infrastructure Needs and Our Ability to Pay for Them." That committee made some recommendations for legislation which provided the foundation for the National Infrastructure Act.

The Joint Economic Committee found that the Nation has $1 trillion in infrastructure needs through the end of this century but at current levels of expenditure by all levels of government, we are going to be about $450 billion short.

Senator MOYNIHAN. We are running about half the rate that the JEC, whose estimate, I believe, Mr. Chairman, was the lowest in terms of others that are made.

Mr. HOWARD. Yes, that is true. From what we can expect, all levels of government would just about cover half of what we need; that is right.

The Joint Economic Committee stated "Clearly, the nation will suffer a reduction in its economic development potential, productivity and jobs. Just as clearly, its residents will suffer a loss in the quality of their lives and the choices open to them."

While I introduced the National Infrastructure Act as a starting point for discussion about the issue, it contained some principles which I believe are essential if we are to make a serious effort to deal with this problem.

First, there is a simple distribution formula for the money. It is based upon population, not on any categorical needs. I believe that, definitely with a ten-year program and quite possibly with a two- to three-decade program, a distribution based on population would be sufficient, because all these monies will have been used. I don't think we have to get more particular about needs in one area than another until we get to the end of the program. I think we have so much to do.

One thing I want to point out is this program needs to be more flexible than the current program. The needs of a Montana or a North Dakota or an Idaho will be very different from those in New York and New England, which will be very different from those in the fast-growing South and Southwest.

I believe when money is distributed it ought to be very flexible, perhaps in any area in water or any area in surface transportation, so that the receiving area might deem where its priorities are. I think this flexibility must be included if we are going to get the kind of support we need for an increase in money. It has to be a program flexible enough so that every single State in the Union will say, "We can certainly use this program well."

Second, States should be given the broad latitude to establish priorities, and I think that for this purpose water and surface transportation are the two main areas. Perhaps 75 percent of the whole

need nationwide may be in the highway area. That is where we ought to be thinking of a "Rebuild America" trust fund.

Third, there must be, as the Speaker has said, an assured source of funding. A program of the magnitude and importance of infrastructure should not be subject to the uncertainties of the annual appropriations process.

The National Infrastructure Act would authorize $30 billion over 10 years for infrastructure through an annual $3 billion entitlement. In that bill, we had a program where we might borrow the money. The Federal government would pay the interest on it and then provide it to the states. The States would begin paying it back, and thus we create a revolving fund. A $30 billion loan, $3 billion a year for 10 years, would create, after 30 years, construction of about $75 billion; $30 billion would remain to pay the debt, but we find that the interest on that would be much more than the total we would get in construction. So that is why Speaker Wright and others are talking about a kind of trust fund fee so that all the money goes into productive uses, the construction and reconstruction of our infrastructure.

A comprehensive infrastructure program should be designed to meet a more generalized set of needs. It would be virtually impossible for the Federal Government to issue a set of guidelines to cover the use of the money that would meet the many diverse needs of the nation.

The Congressional Budget Office has estimated that the $30 billion expenditure would result in more than $100 billion, actually, $105 billion in that program. The $30 billion, would pay the debt off, and the interest would exceed the construction investment by approximately $200 million. This estimate may be a little off, but I think I would throw that kind of revolving program out the window.

It is the combination of the magnitude of the infrastructure problem as well as the difficulties in developing a funding source that has led me to conclude that the only solution is a dedicated user fee or what I call a benefitter fee, such as the trust fund.

Something modeled on the Highway Trust Fund would provide the funds for infrastructure in a fair and equitable manner. As we all know, the more you drive the more you pay. The less you drive, the less you pay. If you don't drive, you don't pay; great program. In that event, everything is in order. There would be a stable, guaranteed source of funding available to meet all the needs we have discussed.

Stron consideration should be given to an increase in the Federal gasoline tax as a funding source for an infrastructure trust fund. I don't believe that we can take the gas tax and say, "This is going to cover all of the surface transportation and water needs that we have." I think there would be great objection to that. I would think that the proportion estimated would go for surface transportation, coming from the users and benefitters of our highway system.

I think this tax would be an appropriate source, certainly. I think it must be used for part of the program, in as much as 80 percent of the estimated needs are transportation related. Therefore, the gas tax would be a fee levied on the users or benefitters.

It is estimated that a 10 cent rise in the gas tax would produce $8 to 9 billion annually in revenue, maybe a little more. A 10-year program raising $80 to $90 billion would provide a significant portion of the money needed for infrastructure. Similarly, a 30-cent increase is estimated to produce over $23 billion annually in revenue. A 10-year program would then produce an additional $230 billion for infrastructure over ten years.

Funding a trust fund for infrastructure purposes is the type of use for which a gas tax is particularly well-suited. In addition to the actual project benefits, it is estimated that a $10 billion annual increase in public works spending would generate almost two million jobs and increase the GNP by $141 billion.

In contrast, the type of gas tax increase for deficit reduction purposes that has been the subject of recent speculation would have a depressing effect on the economy. A recent study performed by Wharton Econometric Forecasting Associates estimated that a 10-cent gas tax increase for deficit reduction would cause a drop in automobile purchases and other consumer spending that would result in a two-tenths of 1 percent decline in the GNP; a 30-cent increase for that purpose would cause the GNP to decline by half a percent. I hope we would not preempt the possibility of using the revenue from a gasoline benefitter fee for infrastructure purposes by raising the gas tax for deficit reduction purposes. It may be the idea that I am talking about is being discussed on the Hill at this time. It would be counterproductive, both from infrastructure and economic perspectives. It may provide some assistance on a short-term basis, but it is imperative that we view the infrastructure problem from a long-term perspective.

From that perspective, we must begin to provide adequate funding for the Nation's infrastructure. This infrastructure was in a state of crisis at the beginning of the decade, even before the budget cuts that the President inspired took effect. Since then, the Federal government's infrastructure spending has been drastically curtailed, and we face an even greater crisis.

It is important to keep in mind that infrastructure is not and should not become a partisan issue. There is no Democratic or Republican way of building a bridge or a sewage treatment plant. However, they are projects that must be accomplished, and they cost money. There is no other way of doing it. Deteriorating bridges do not get better by themselves.

The longer we delay on these projects, the more they will cost. Today's bills will just continue to increase as we consider the problem. The state of the Nation's infrastructure is a difficult, expensive problem, but it must be faced if the Nation is to have a vital, healthy economy. We have the greatest transportation system in the world; we have done more for the environment than any other nation, and our system of water supply is unequalled. However, it requires action by this Congress to the Nation's infrastructure to meet the needs of late 20th century America.

As you know, I have been seriously concerned about this issue for the past decade. The Committee on Public Works and Transportation has been working on infrastructure legislation for the last two Congresses. Your hearing today gives us hope that we will finally get some action on this growing problem. We hope to work

with the members of this Subcommittee and our Committee in the coming months in developing an infrastructure bill that will meet the needs of the nation.

I am confident that if we work in the same spirit of cooperation as we have been able to in the past on the Highway Bill and the Clean Water Act that we can get this job done. Thank you very much, Mr. Chairman.

Senator MOYNIHAN. That is extraordinary testimony. I wonder, Mr. Chairman, if it wouldn't be useful if your associate, Mr. Hammerschmidt, spoke first and then we can have questions.

Mr. HOWARD. I think that would be fine. Thank you, Mr. Chairman.

STATEMENT OF HON. JOHN PAUL HAMMERSCHMIDT, RANKING MEMBER, HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

Senator MOYNIHAN. Good morning.

Mr. HAMMERSCHMIDT. Good morning, Mr. Chairman. Mr. Chairman, I don't know how I could enhance the testimony of the distinguished Speaker of the House or the very able Chairman of our Committee. They brought it all to you in substance and in enthusiasm.

Nevertheless, I wanted to be on the record, so I very much appreciate the opportunity to appear before you and the distinguished members of this Subcommittee as you examine the funding needs for construction and rehabilitation of our Nation's infrastructure.

As it has been so eloquently said earlier, this is a matter of great importance and compelling urgency. Under the very able leadership of Chairman Howard, and with special initiatives offered by a number of our members, notably, Congressman Bill Clinger, we on the Public Works Committee have begun to address this issue legislatively and through the hearing process.

Where identification of needs is concerned, Congress has taken an important step with the enactment of the Public Works Improvement Act of 1984, as you very well know, in this Committee. That Act created the National Council on Public Works Improvement to analyze the state of our nation's infrastructure and focus on improvements needed to help sustain current and anticipated economic growth. Although the Council has not yet submitted its final report, it has provided us with studies covering the various components of public works.

In addition, this Congress and the last provided important support for infrastructure programs through enactment of bills that have already been mentioned, The Omnibus Water Resources Development Authorization Bill, a Clean Water Act renewal, and a major highway and transit bill. Moreover, our committee last month reported a five-year reauthorization of the airport and airway development program.

The Committee also expects to hold a hearing at the end of this month to examine the implications of current Federal fiscal policy on local infrastructure financing. This follows the very extensive and comprehensive series of regional hearings we held around the country to determine the funding needs of infrastructure improve-

ment. The hearings provided valuable input into the dimensions of the problem.

As you know, Mr. Chairman, infrastructure is basic to our economy and to our daily lives. Putting public works in place and maintaining it takes the efforts of many people at many levels of government. Each level has a responsibility to help improve our infrastructure and must begin immediately to examine how it can best carry that out.

Our regional hearings clearly confirmed our concerns that there are enormous unmet infrastructure needs throughout this country, and the importance to our national economy of effectively addressing those needs without further delay was dramatically underlined.

We also learned from our hearings that states and localities are undertaking some new and innovative approaches to deal with infrastructure. One of the most notable is the "Build Illinois" infrastructure renewal program started by Governor Jim Thompson.

Essentially, the State of Illinois recognized the need for infrastructure renewal and imposed a new tax to finance the bonding and current cash outlays of a $2.3 billion program.

It is both commendable and appropriate that Illinois is putting state resources to work in such a manner, since infrastructure maintenance and improvement is largely a state and local responsibility.

One of the things we need to examine at the Federal level is how best we can help such State and local governments raise the money necessary to meet their needs and carry out their responsibilities with respect to infrastructure.

Our hearings raised a number of questions that Congress will need to answer as we seek to fashion an appropriate Federal response to the problems besetting our national infrastructure.

Given our large Federal deficit, can we realistically expect to provide significant amounts of Federal funding for infrastructure improvement?

If Congress does decide to provide major new Federal assistance for infrastructure improvements, where can we look for the necessary revenues?

Should States and localities be given broad discretion as to the types of projects funded, or should Federal funding be targeted toward infrastructure improvements of high national significance or application?

Will the approach taken in any new program be one of grants or loans? What should the Federal and State share of costs be, and should there be user fees? It is important that any new Federal program not become a substitute for state and local spending. Federal funds should leverage state and local contributions, not replace them.

Now, all these questions that I have just asked have been somewhat answered by our Speaker and by our chairman. We all have different ideas about that. Of course, that is what hearings are all about.

But in closing, Mr. Chairman, I want to discuss a matter about which I feel very strongly, and that is the effect of current budgetary treatment of transportation trust funds on our existing transportation infrastructure programs.

Any discussion of financing infrastructure improvements would, in my view, be incomplete without giving serious consideration to removing these deficit-free self-supporting trust funds from the spending constraints imposed under the unified budget. These funds operate on the concept of pay-as-you-go, and that is how I personally feel we should finance infrastructure improvements.

However, the practice employed during the past several administrations of using trust fund balances to create the illusion of a smaller general fund deficit is totally corruptive of the budget process; it breaks faith with the users of our transportation systems and severely damages the programs for which the trust fund money should be spent.

The users of our highways, mass transit, airports and inland waterway systems pay taxes to support these trust funds on the condition and with every expectation that they will be used to improve those systems.

Since these trust funds contain dedicated revenues, they cannot be used for purposes other than transportation. Therefore, the money simply lies in the trust funds accumulating interest. It is invested in government securities while system improvements, the very thing we are talking about here today, are not made.

We, on the Public Works and Transportation Committee, have made several attempts on the House floor to take these trust funds off budget. Although we have not yet succeeded, we have come close, and I can assure you that our efforts will continue.

Again, I thank the chairman and members of this subcommittee for holding these hearings and for affording me the opportunity to appear before you and provide testimony on this most important matter.

Thank you, Mr. Chairman.

Senator MOYNIHAN. We thank you, sir, and for many past associations, as well. I think the Speaker's point is that it's clearly, a fiduciary relationship. I think our committees jointly have to work to this quest. We essentially have a fiduciary responsibility of our own. We enacted those trust funds, and if we allow them to be misused, I believe we feel they are, it is corruptive of the budget process. That is the question to be addressed in the context of what we are talking agent here.

Senator Chafee, I think Senator Reid would be the first person who might want to speak to our witnesses.

Senator REID. Thank you, Mr. Chairman. I feel, as Congressman Hammerschmidt, that the area has been well covered today. I think the testimony received from the Speaker, Chairman Howard, and Congressman Hammerschmidt has been very good.

Again, I say to them the same thing I said to the Speaker. I think it is good that we are talking specifics rather than generalities. When we can pinpoint the number of bridges that are defective, we can carry this legal theory even further, Mr. Chairman. We can talk about violating a fiduciary duty that we have in maintaining these trust funds and spending the money, so to speak. But we can carry it even further. Do we not have an obligation to the American public to correct the deficiencies, for example, in these bridges? Are we not negligent in not doing something about them? Clearly, from a legal standpoint, we are. We as a Congress are neg-

ligent, knowing that there are dangers out there and are not doing something about it.

I get so upset when we pass a highway bill, a water bill, and we are criticized for pork. These are programs that benefit the American public, and as the Speaker indicated, the projects have to go some place, and they go to various Congressional districts. I think that we have to recognize that we are not doing enough, and if people want to call it pork, they can call it pork. But we are not doing enough to protect the American public.

I really congratulate you, Mr. Chairman. There has been a lot of accolades thrown out here today, and I congratulate you for these hearings, but I think it is a rare day that we can have the chairman of the House Public Works Committee, the Ranking Minority member of that committee, and the Speaker of the House here speaking in unison that something must be done. And something must be done.

Senator MOYNIHAN. Thank you.

Mr. HOWARD. Senator, if I could just comment, I believe it was the chairman of this Subcommittee that made the ringing statement a few years ago that stayed in my mind, that pork barrel spelled sideways is infrastructure.

Also, after we have collected the money and the people have paid the tax money for highway development and we have over $11 billion sitting in that fund, it is unfair that for smoke and mirror reasons, we are not using the money for its intended purpose.

Senator MOYNIHAN. May I just associate myself with Senator Reid's view that the disparagement of public works is the disparagement of public purposes. It does not belong in our accounts.

Senator CHAFEE. Would you like to speak to our group?

Senator CHAFEE. I want to welcome our distinguished friends from the House. I have had the distinguished pleasure of working with them for many years now. As has been pointed out, we are already doing a lot in this area. This is an area that lies untouched, as has been mentioned. We have the Clean Water Act. We have the highway program, and we have the 5 cent tax on gasoline we put in; when was it?

Mr. HOWARD. In 1982.

Senator CHAFEE. In 1982, when Drew Lewis was Secretary of the Department of Transportation. The localities and States are doing a lot. We have the airport trust fund I am interested in the specific areas that these gentlemen and you, Mr. Chairman, feel are not being covered. Bridges, well, we have the bridge trust. We have the extra money for the bridges. Maybe we ought to be doing more. So those are the specifics that I would be interested in hearing.

Senator MOYNIHAN. We are going to; in our next hearing, the Commission will be reporting. Its third and final phase is before us, and we will be getting those specifics. You will, too, won't you?

Mr. HOWARD. Oh, yes.

In there, also, we would like to say, from the House side, that in our statements and hearings and any legislation we introduce, we are not really locked into anything. We have months to understand the enormity of the problem, months to cross the country to see how broad the problem is and how different it is in various areas of

the country. We don't believe we have the answers in any legislation we have introduced. We have introduced, more or less, a talking point.

Senator CHAFEE. Let me just say one other thing, if I might, Mr. Chairman. When we talk public works programs, we do not always talk of Federal public works programs. There have been references either by Congressman Howard or Congressman Hammerschmidt about what Illinois is doing, and each of these States, I think, can carry a pretty good share of the burden.

I guess it was in Congressman Hammerschmidt's statement where he talked about the "Build Illinois" infrastructure renewal program. So that this isn't all a Federal Government load, obviously, I am sure.

Mr. HOWARD. In numbers, the total amounts, we expect that there certainly will be a partnership put forth by the states, also.

Senator REID. Would the Senator yield?

Senator CHAFEE. Sure.

Senator REID. The one thing from Chairman Howard's testimony that impressed me was the fact that these figures have dropped as a percentage of Gross National Product. As I recall, the State level is down almost 50 percent.

Mr. HOWARD. Over 50 percent.

Senator MOYNIHAN. Over that. I would like to say if I can, and so everyone will be clear, the schedule is not necessarily that; we don't carry it around on our heads. The National Council on Public Works Improvement, established by the 1984 legislation Mr. Howard and Mr. Hammerschmidt put together will be finishing its report. It will be done in October.

In October, we will have the final report. We have already a great set of studies I think we will be examining, in detail, trying to answer one question: Are we, using up the investment? That is a specific. And in that category, we are going to go forward.

Senator Symms?

Senator SYMMS. Thank you very much, Mr. Chairman. I appreciate both of you being here this morning and sharing your views with us. Did you have anything in your statement about how this trust fund money might be spent? What the formula would be, Mr. Chairman?

Mr. HOWARD. We do not know. As I say, we are not locked into anything. The needs are so great out there that we presume that you might, first of all, have it total flexibility. I don't think we have to say, you have to use this much on highways; you have to use this much on water; so much for bridges.

The needs are so great around this country for new construction and reconstruction. This covers reconstruction, these numbers we gave out. Some areas need a lot of new highways. Other areas, like in ours, we don't need new ones. That should be very, very flexible.

We had thought, off the top of our heads, since this is going to be a three-decade program, perhaps the money would be allocated on a population basis, and the States could put a certain amount of money in as their share and they could use it themselves.

Certainly, as we go through the program, I don't think it will be one piece of legislation that will exist the whole life of the program. We are going to have to revisit this, and get more particular

to make sure that we meet the needs. In the beginning, I don't think we will have much trouble. The States will be able to effectively use all of the money that they will be receiving.

Senator SYMMS. I just say don't, and I am sure you haven't, but don't overlook the fact that a formula based on population isn't going to fly too far in the U.S. Senate when you get States like Montana and Idaho and Utah.

Mr. HOWARD. We certainly understand that, and we are flexible on that. Yet what we hope to do with this program is to be able to have the Federal Government equally and fairly participate so as to meet the infrastructure needs of all of our States. I think if we don't do something like that and make it acceptable, we just won't have legislation, as you are pointing out.

Senator SYMMS. You have already touched on the surplus balances in the trust fund, both of you have. If we create a new trust fund, we already have one highway trust fund and a transit fund and an airport trust fund that are accumulating huge surpluses. I think there is almost $11 million of a $400 million trust fund from the revenue going into a highway trust fund now. If we create a new one, what makes us think it would be difficult in the future? Is there some big political will in the winds here that is going to change this thing?

Mr. HOWARD. I think there is a great move afoot now. John Paul and I have gone around the House a few times already in trying to get these funds off budget, in the same way as the Social Security Trust Fund. I would not be a bit surprised if by early in the next Congress, when we might be working on this, that we may have established a principle in getting them off budget.

In regard to the statements you have been making, and many of the Senators have been making, I believe that on the House side we do have a momentum going now that will save us from being faced with that problem. Certainly, it would be very, very bad if we were to create this new "Rebuild America" trust fund and then have the smoke and mirrors of the Budget Act blocking or holding back funds. This must not be done. There is no answer to this problem other than we must build and to not do it 100 percent would be a sham, I believe.

Mr. HAMMERSCHMIDT. If I may interject?

Senator SYMMS. Certainly.

Mr. HAMMERSCHMIDT. To agree with what Chairman Howard just said, I think it is just as important that we move concurrently with this effort in getting those trust funds off the unified budget. Then if we are successful there, of course, the new trust fund would not be part of the unified budget. It would be a trust fund as the name implies, rather than being used as though it would be used tomorrow. I think both those efforts have been made by both our committees.

Mr. HOWARD. Incidentally, the aviation bill which we passed out of our committee and is in Ways and Means, does have a trigger mechanism on the trust fund stating when the surplus gets to a certain point, then we don't collect that 8 percent per ticket any more. We are not going to take people's money and just have it sit there and make the Budget look better than it really is.

Senator MOYNIHAN. Could I suggest a formula, Senator Symms? What do you say: Population times longitude divided which is the inverse square of main mountain time.

Senator SYMMS. That is a good start.

Mr. HOWARD. We understand, it must be universal. We have to have every State in the union say, This is fair, and we can certainly use this program. Otherwise it won't work.

Mr. HAMMERSCHMIDT. In those mountains, it will work in the Ozark region.

Mr. HOWARD. The highest point in my District is 342 feet above sea level. Let something else work there, if you don't mind.

Senator MOYNIHAN. Mr. Chairman.

Senator BURDICK. No questions.

Senator MOYNIHAN. We want to thank you gentlemen so much. You were here right at the outset. You accompanied the Speaker, of course. In one of the great moments of this committee, you honored us with your presence and the distinguished leader with coming over here. We look forward to working with you very specifically, in the meantime, particularly as we get the vital report from the Council and we thank you again, sir.

Mr. HOWARD. Thank you very much. Thank you.

Senator MOYNIHAN. Mr. Chairman, we are about to hear one of the most distinguished academicians of his time, Professor Wolman. As you know, I have to be at a memorial service for the late Arthur Burns, who was a student of his brother, and if I could ask, sir, if you would have the courtesy to conduct the hearing at this point?

Senator BURDICK. Certainly.

Senator MOYNIHAN. The people understand, I hope. This is a personal matter I have to do. I will depart. Thank you, sir.

Senator BURDICK [presiding]. Will the witnesses come to the table, please?

STATEMENT OF PROF. ABEL WOLMAN, PROFESSOR EMERITUS, THE JOHNS HOPKINS UNIVERSITY

Senator BURDICK. Welcome to the committee.

Professor WOLMAN. I am Abel Wolman of Johns Hopkins University.

Senator BURDICK. Would you bring the mike a little closer to you?

Professor WOLMAN. Yes. I am Abel Wolman of Johns Hopkins University. As a preliminary comment, Mr. Chairman, I would like to dispel the notion that some archeologists just dug me up to appear before your group.

I was invited to do so from your staff members, and in doing that, I filed with him my curriculum vitae, which spans an enormous number of pages which no one, to my mind, would have the temerity to wander through.

In view of that fact, I would like to register with you what I believe my assignment on the part of your staff has indicated I should undertake. I want to share with you the fact that when I left the university with the grand post-graduate degree as an engi-

neer, my first full-time job dealing with infrastructure and its function was exactly 72 years ago.

In the interval since that time, I have operated within the context of that undertaking or series of undertakings over the full 72 years at every level of government, city, county, region, state, Federal, and so on, and more recently, over the last 40 or 50 years, internationally.

In that series of undertakings, I was confronted with the infrastructure issues. In fact, beginning with their construction, with their design, with their operation and maintenance, and someone on your staff indicated to me that it might be profitable to your deliberations if I were to review with you, heaven forbid, the 21 categories of infrastructure function which appeared in practically all of the deliberations which have been registered here this morning and for many years before.

There usually is 21 or 20. In the morning before I came here, in the preparation for this approach, I find that I have been engaged in one capacity or another over the 70-some years with 15 of those 21 categories of infrastructure. Your staff suggested to me that it might be profitable, as rapidly as I could do so, to look backward into the future in the evolution of those infrastructures.

I think it was he who suggested that I might choose not 15, but one, and review it with you. The one which he suggested which, of course, I like very much, has to deal with water, that interesting commodity without which, of course, society would and could clutch.

So I shall share with you, as briefly as I know how, a few examples as to how that particular service originated and reached figures which I shall burden you with a few moments later.

In doing that, I choose only two or three communities, familiar, of course, to everybody on your group. Before I do so, I want to refer to what comes about to me as an amateur scholar of the Bible. I think those of you are more familiar with it. For many, many years in my public efforts to stimulate the development of infrastructure in communities throughout the world, I used the quotation of the hewers of wood and the purveyors of water, always a little bit puzzled by that reference in the Bible. And I will make a comment to put it to this extent.

It is within the last five or six years in the archeological dig-ups in the vicinity of Damascus and in Israel that presumed community responsible for that service Gigleon does, in fact, exist, and there are reservoirs, and there are tunnels, and their actual service to all the areas is now known, visible to you and me. It is its importance, and the only reason I register it is the Tasha came through there killing everybody in sight. He announced that they shall continue to persist with the fervor obligation of providing the hewers of wood and the purveyors of water, and water, therefore, is of interest to you and me, as one of its advocates among those people whom I served, first, what is the 250 million people or more in the United States and last week, of course, the five billion people with whom I deal over the last 45 or 50 years.

Now, let me return to my own city. How did the water supply come about in the City of Baltimore, not very far from here? I authenticate to you that it was not done with noble purposes. It was

done to lay the dust, to fight the fires and to provide the water for horses, very interesting Americana, but it was not intended to provide either drinking water or water to wash, in this case, in most instances throughout the development.

How did it come about? It came about primarily through the institution of private water companies, but before that, you did the best you could; you went to the nearest springs; you dug your own well; you hauled the stuff from place to place, and you drank what there was.

Until I was about 16 years of age, I drank what there was, and my mother invented the first filtration plant in the United States, which was a rag around the faucet. Otherwise the color of the water presented a color darker than this desk. In other words, that was the methodology.

When the private water company came into play, it went a little bit further and provided us with a community water supply, very bad, not too much, and ultimately, we bought them out and returned to New York City.

I am sorry the chairman has disappeared. I have been an adviser to the city's mayors for approximately 60 years. Their problems are universal. I have to been back there in the current twelve months to return to the problems of that community. Exactly the same situation arose there. I call your attention to the fact that in that city, you have the largest community water supply system in the United States. They serve only nine million people, and that is about the service to half the people in the State of New York. That it has dilemmas, there is no question whatsoever. It started the same way as it did in my own home city. They drank what there was: What there was in streams; what there was in wells; what there was in Central Park, which is a marvelous spring area, and way back, Ernie Burrell arrived and created a water system.

His intention, you probably know, if you remember your history, had little or nothing to do with water, what he got out of Central Park, but by its charter, he created the national bank and got into difficulties. I share that with you.

Boston, which is the earliest water supply in the United States, 1652, was going through exactly the same rehearsal. What does this all mean? When I said to you I look backward into the future, what does it have to do with the speakers who I have listened today with exactly great interest and no small degree of pleasure.

They confront themselves today with the problem. Then we jump, today, to the water situation in the United States.

We have 58,530 water community services in this country. I give you that as a term of the evolution I have been sharing with you. The large systems, by definition, represent conveyed water to almost 90 percent of the population of this country. The remaining, what we call the small ones, about 11 percent. The small systems, and this I want to share with you, are 51,418.

By small, I mean there are very, very few people in them, and they are scattered everywhere in the United States, and the concern, as I noted again this morning, of the members of your group, of the House, and of the Senate is they are poorly serviced; they are, in many instances, dangerously serviced; they lack skills; they

lack managerial competence; they lack money. I list that for you for this reason.

Now, let me take a brief look into the future and then I am at your service, if you find that I may be able to answer some of your desires.

I, naturally, looked and said, "What should we do about all of this?" Before doing so, I want to share a comment or two made by Nancy Rutledge and Dr. McClosky when they first delivered the eight or nine columns of the group whom you employ to present the result of their years of inquiry into these issues.

I quote them because I happen to share their feeling, which is exactly, I shared with Nancy Wright, as yourself, by telephone to be sure that I was quoting her correctly. The summary she gave me in one sentence. "America is not in ruin, but in some ways, America is becoming more fragile."

I have cited that fact. McClosky indicated challenge is to separate reality from the prevailing midst of our infrastructure deterioration. Existing systems throughout the country are generally acceptable.

As I said, I share both of those. That does not mean by any means that we do not have a series of incredible difficulties, and here, I want to add only one more thing: As an adviser all my life to officialdom, mayors, county executives, Presidents of the United States, where things may be in the rest of the world, most of my ideas have directed toward enticing or persuading or hoping that they would provide and save for 2.8 billion people in the world nonexistent water.

This I won't belabor with you, but the problems in our own country of infrastructure are quite simple over the last 20 years. They have all been starved financially. Because it was easy to do so. Maintenance and operating systems and keeping them up to date require annual budgeting. They are all under periods of economic stress in those 20 years. The easiest things for executives to do was to take it out of the budget.

Now, what I will visualize now today, in all of them, in all of them, there are very few exceptions, and I know them fairly well: They lack skill; they lack money; they lack purpose. They lack, obviously, the transfer of the scientific and technological riches which our country happens to have.

Then let me move for just one moment. What do I see about intervention by government? I am not one of those who insists the government should eliminate itself. I visualize that trend very lightly here, visualize that the overlying national government has not only opportunity but responsibility. It must set goals. It must make major research and development. It must provide not too much carrot; discrete use of money, returning with maximum effort obligations, purpose, and funding to state and local subdivisions.

Thank you very much for your attention.

Senator BURDICK. Thank you very much.

Senator Reid.

Senator REID. Mr. Chairman, I appreciate the testimony of Professor Wolman. I think it is a good culmination of the testimony we have heard here today. He acknowledges, as has everyone, that

government is going to have to get involved in the problems that we have with our infrastructure. My only regret is that you were only able to discuss briefly one of the categories. I would sure like to able to hear about the other 14, the background history of how the 14 other categories have developed and the examples that I am certain that you could give.

I really don't have any specific questions. I think that I did take some notes about, for example, the Baltimore water district. It wasn't originally developed to supply water, but to fight fire, to lay the dust. Water was always a secondary requirement of the water districts.

I think I also heard you clearly say that our infrastructure is not in ruin, but it is very fragile and that it is important that government get involved to try to take care of this fragile commodity we have we call infrastructure.

I appreciate your taking the time to come here and sharing with us your brief experiences. Thank you.

Senator BURDICK. Brief?

Senator REID. Only 95 years.

Senator BURDICK. Mr. Wolman, you testified there are 58,500 water service systems. The large systems, 10 percent of them, serve 90 percent of the population, and the smaller systems, the 90 percent, serve 10 percent.

What do you recommend to help the small systems?

Professor WOLMAN. Essentially, we need to set up not so much money as institutional structure. The roving preacher in my day who used to wander around the United States giving sermons, you may remember, of course. I need the roving consultant group that would service regions of the small water companies. They are all, with very few exceptions, in disarray.

Those roving consultants would do two or three things: It would provide, first of all, skill in operation and maintenance. I am reminded of my earlier days when I was such a roving inspector that I found it difficult in very small communities as to who it was that kept the so-called community water system operating. What one of those very dramatic in my mind turned out to be the barber of the community.

So I searched him out, and I sat while he finished your haircut until I said to him, "Now, could you go out with me and let me see the system?" which he was perfectly willing to do. He had a little difficulty finding out where it was, but he did a reasonably sound operation.

In addition, to try to help the community systems to get some kind of an institutional structure which would provide them with somewhat more money than they were hoping to summon up. I repeat a major comment here. One of the reasons for the starvation of infrastructure, not only in water, but in wastewater, in my good old garbage, with which I have dealt most of my life, ordinary sewage water supply, for example, is extremely cheap.

The two speakers before I came up here made a comment on the fact which I think should be remembered: That pay as you go is a necessity. There may be other devices by which we may handle over 50,000 of these water supplies. They are representative, not of an awful lot of people, but if you take only 10 percent of the people

in the whole United States, that is a lot of people who are exposed to degrees not only of fragility, but of danger.

I did not talk about quality of water at all, but it is one of the major problems, not only in the United States, but of the world at large. I should remind you, the United States is not void of water epidemics. I won't burden you with those. We have them a great deal. This is one of our future challenges, as well.

If I may summarize, not only for the small water systems, I have an acronym which is not patented. I have four Ms, Mr. Chairman. They are quite simple in the order of priority:

Motivation, number one. What I mean is, does the government, the national, state, local and so on, intend to do anything?

Number two, of great importance, manpower. Almost every system in the United States, paralleled by the other 15 which I claim, lacks manpower skill. We need education on a very high level of production.

Number three, managerial competence in parallel is equally lacking. We must make some provision for doing that.

Strangely enough, in the categories of constraint, where we have not been too successful, is money, and that is true globally. It is needed, but throwing money at it is not going to accomplish the task.

I here return internationally for just one moment. The World Nank, UNDP and donor countries are establishing over the last two years centers for education throughout the developing countries. It is really one indication that our relationship to international operations is not a one-way street from the United States to them. They have much to tell us. That is one of them.

Senator BURDICK. Do you support the work of the rural water associations and do you think they can fill the need for technical assistance to these small communities?

Professor WOLMAN. Well, that history of mine which I happen to date, because of a certain anniversary internationally, I have just completed something during 45 and 50 years of international work, representing, on the average of those intervening years, I was out of this country about 40 percent of every one of those years and still continuing while I sit here.

In other words, I have been back at the international office in Geneva the last 14 or 15 months three times on global problems.

Perhaps I ought to make a comment on that. As one of the designers of the so-called International Water Decade and Sanitation, which I participated in 1978, we summoned up what it would cost to provide some kind of service to 2.8 billion people. The figures, I was reminded of them by listening to them before I spoke, ran somewhere between $400 billion and $500 billion.

I comment on it because having done that, we intimidated the developing universe by just that number. They did not listen to the fact that was to be spent annually and, in turn, was repayable and so on.

I would indicate to you that in 1987, we have gotten nowhere with respect to accomplishing the ten-year objective, and I really mention it as a kind of lesson to us. Namely, that speeding it up simply by the suggestion of hundreds of billions of dollars requires something in addition.

The four Ms that I mentioned are conjured up at the request of the international group as to what constraints were, and I have already given you what those four are. Those should find their way, if I may virtue the suggestion, into whatever legislation results from your desirable purpose and hopes.

Senator BURDICK. Thank you very much, Professor Wolman. Your testimony is greatly appreciated and very valuable. We have all been honored by your presence.

Other members regret their absence but are required to meet other obligations. Your statement will be a part of the written record and will be available to the entire Senate for their study and edification. The hearing is hereby adjourned.

Professor WOLMAN. Thank you for the opportunity, sir.

[Whereupon, at 11:30 a.m., the subcommittee was recessed, subject to the call of the Chair.]

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